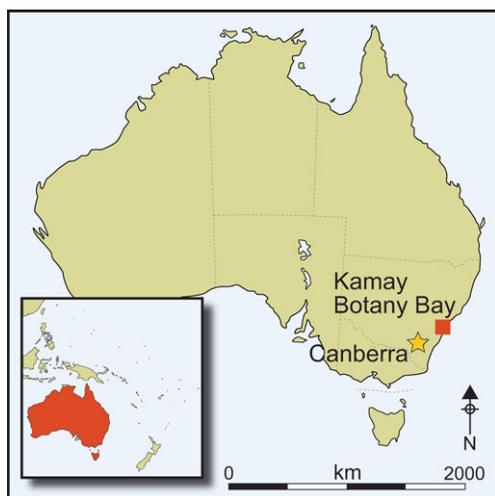


An Aboriginal shield collected in 1770 at Kamay Botany Bay: an indicator of pre-colonial exchange systems in south-eastern Australia

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A bark shield now in the British Museum can be identified from documentary and pictorial evidence as one collected by Captain Cook during his first voyage to Australia in 1770. Such shields often had special value to their Australian Aboriginal owners and hence might have been exchanged over considerable distances. This particular shield is known to have been collected in Kamay Botany Bay but analysis of the bark of which it is made revealed it to be of red mangrove, a tropical species found today more than 500km distant on the New South Wales north coast. It hence bears valuable testimony to the long-distance exchange networks operating in

eastern Australia in the period before the disruption caused by European colonisation.

Keywords: Australia, Kamay Botany Bay, Captain Cook, red mangrove, bark shield, variable pressure SEM, indigenous exchange networks

Introduction

In May 1770, while Captain Cook was on his first voyage across the Pacific in the *Endeavour*, he collected a wooden shield on the eastern coast of Australia. This shield was taken back to England and is now held in the British Museum (acquisition no. Oc1978, Q.839). While questions were raised in the past about where the shield was collected (Kaepler 1978: 250; Megaw 1993: 28), there is evidence that verifies its point of collection as Botany Bay

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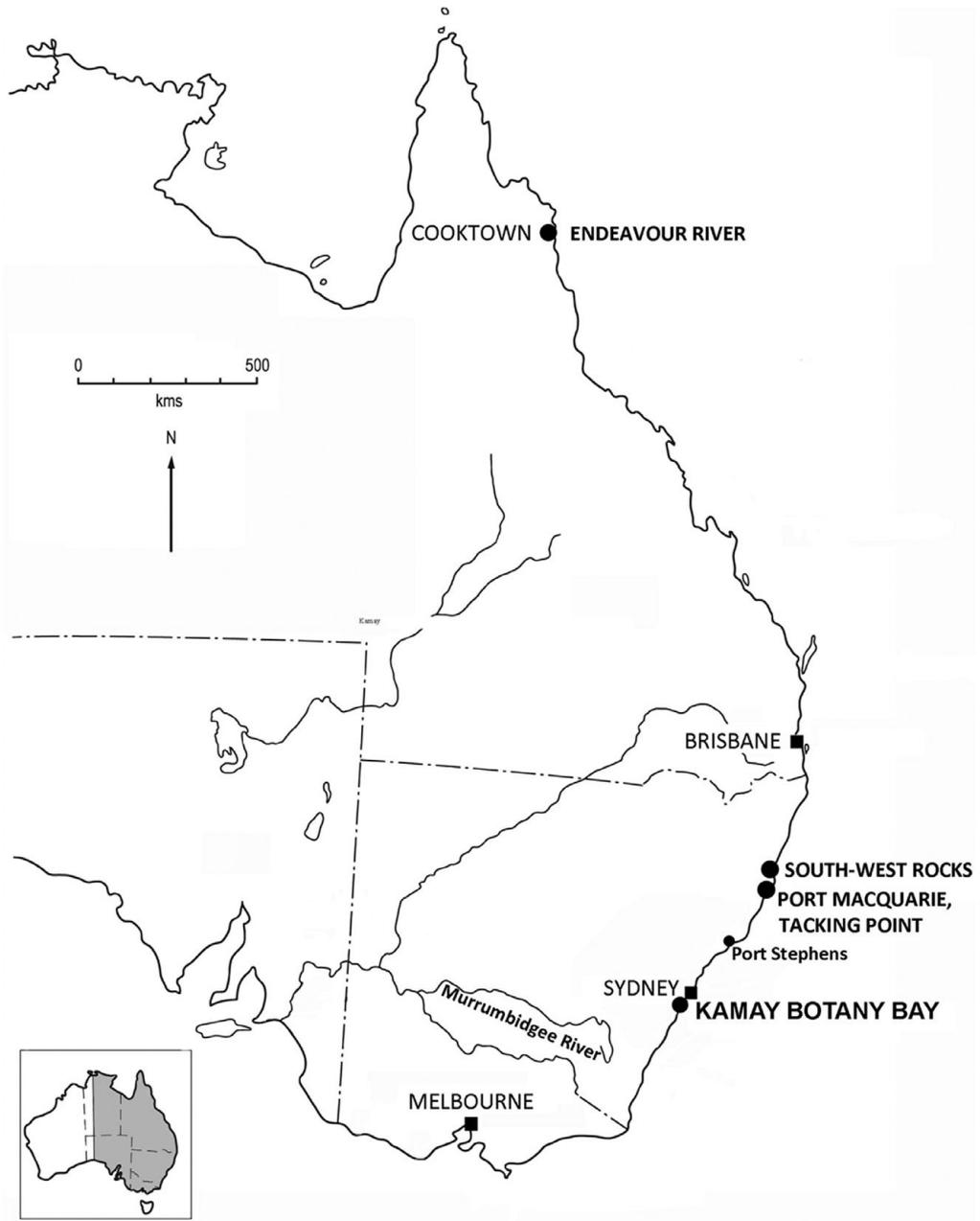


Figure 1. Map of eastern Australia, showing locations mentioned in the text.

(Megaw 1994). However, recent botanical evidence obtained by the British Museum points to its place of manufacture being at least 500km to the north of Botany Bay (Figure 1).

The people who inhabited the southern shore of Botany Bay where the HMS *Endeavour* landed were Gweagal, a territorial clan within the Dharawal language group. Their name

for Botany Bay is Kamay; this has been acknowledged in a dual naming initiative by the New South Wales National Parks & Wildlife Service, and the area where Cook landed is now within Kamay Botany Bay National Park (NSW National Parks & Wildlife Service 2002: 26; Attenbrow 2010: 16, tab. 2.1).

Shields were just one of many different tools and weapons that the Aboriginal people of coastal Sydney used during their daily lives; this equipment also included fishing and hunting spears, spear-throwers, fishing hooks and lines, stone hatchets, clubs, digging sticks, baskets, net bags and other containers, as well as canoes. Many items were collected during Cook's eight-day stop in Botany Bay in 1770 (Beaglehole 1963: 55), but very few are known to survive in museum collections. In addition to the shield held in the British Museum, there are four spears in the Cambridge University Archaeology and Anthropology Museum (CUMAA D.1914.1–4) (Megaw 1993: 26–27). Similarly, very few items collected in the Sydney region during the early years of the British colony in Port Jackson have been identified in museum collections worldwide (Megaw 1994; Attenbrow 2010: 86). Its rarity, its age in the Australian context and its history give the Kamay Botany Bay shield great heritage and scientific and social significance to Indigenous and non-Indigenous Australians as well as to people in Britain. For this reason, the British Museum included the shield in its recent projects 'History of the World in 100 Objects' (MacGregor 2010: 581–85) and 'Talking Objects' (Deakin University 2013).

The shield

The shield collected at Botany Bay is an elongated oval with pointed ends; it is slightly convex and relatively uniform in thickness. It is approximately 0.97m long by approximately 0.29m wide and made of bark. It has a wooden withy handle attached vertically at the centre of the inner side of the shield (Figure 2). It is pierced by two holes, one in the centre near one end of the handle (Figure 3), and a smaller one near one end of the shield (Megaw 1994: fig. 1a & b; British Museum 2013a & b). Shields were defensive weapons used principally in situations of conflict or aggression as well as in acts of retribution and in ritual combats at which disputes were settled. The hole near the centre of the Botany Bay shield is probably spear damage.

The first British colonists of Port Jackson (Hunter 1968 [1793]: 55 and notes therein; Collins 1975 [1798]: 487, 509; Tench 1979: 284 [1793: 191]) described three categories of shield according to their local Aboriginal names. Spellings of the different shield names vary according to writer (Troy 1994: 45; Attenbrow 2010: 3, 96). Attenbrow uses the following:

- the *elemong*, made from a piece of bark; these were oblong or oval, slightly convex with a handle fixed to the back; usually about 0.75m × 0.45m × 25mm, and often painted with various red and white markings (e.g. Peron & de Freycinet 1824: pl. 30.7 & 30.7a);
- the *arragong*, carved out of solid wood;
- the *tawarrang*, made of solid wood, which was long and narrow, with three sides. One side had its handle hollowed out by fire, and the other sides were carved with curved and waved designs. It was a parrying shield, but also used as a musical/percussion instrument, being struck with a club.

The Botany Bay bark shield can be classed as an *elemong*.

For the two recent British Museum projects, the British Museum's Science Group in the Department of Conservation and Scientific Research examined the shield to identify the plant material from which it was made and to determine any other features of interest (Cartwright *et al.* 2010). Both the shield and handle were identified as being made of red mangrove (*Rhizophora stylosa* Griff.). In addition, adze marks on the surface of the shield, revealed in radiographic images, suggest that the ragged edges of the hole at the centre of the shield are consistent with it being a point of damage, rather than the result of a natural knot of wood falling out. Although there is no obvious decorated design on the shield, examination by Fourier transform infrared spectroscopy (FTIR) in June 2010 identified as kaolin clay a white material randomly distributed over the shield surface (British Museum 2013a & b).



Figure 2. Front of the shield collected at Botany Bay in 1770 by Captain James Cook. British Museum, registration number Oc1978, Q839. Image number AN 585093001, reproduced courtesy of The Trustees of the British Museum.

Place and date of collection

This bark shield was collected in 1770 on Lieutenant (later Captain) James Cook's voyage in HMS *Endeavour* (1768–71), the first of his three expeditions to the South Pacific. However, the diary entries by Cook and Sir Joseph Banks for their eight-day visit in Botany Bay between 28 April and 6 May 1770 make no reference to a shield being collected there (Beaglehole 1955: 304–13, 1963: 53–61). They refer only to a shield that a man picked up to protect himself and to a shield they saw in one of the huts. Banks, in his diary, reports also that they took “all the lances which we could find about the houses, amounting in number to forty or fifty” (Beaglehole 1963: 54–55; see also Beaglehole 1955: 305).

It is only later, in August 1770, when at Endeavour River in northern Queensland, that Banks describes the shield as he is comparing the items they saw or collected at Botany Bay with those they observed at Endeavour River. He described the shield as follows:

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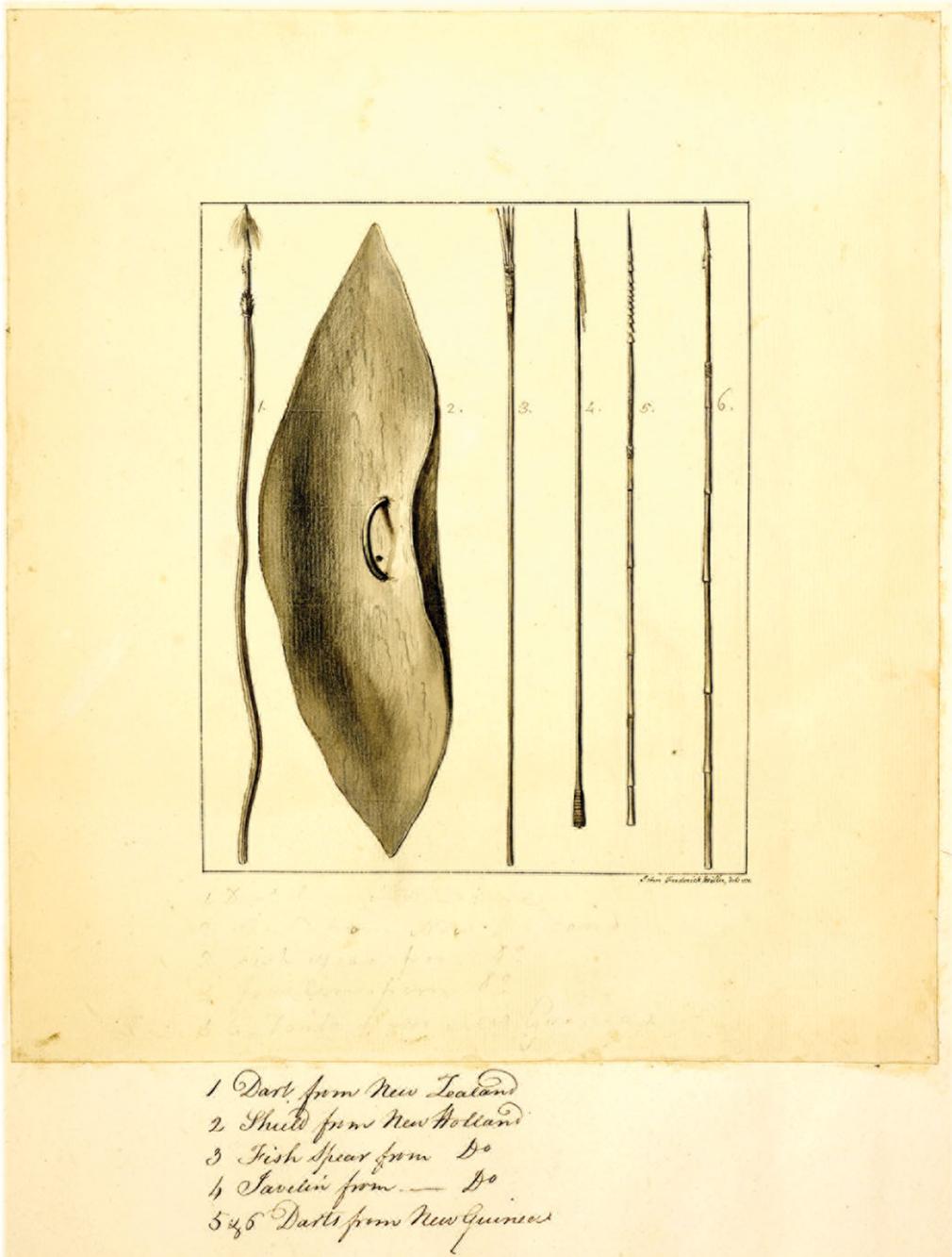


Figure 3. 'Dart from New Zealand; shield, fish spear and javelin from New Holland [Australia]; two darts from New Guineas'. Image taken from A collection of drawings made in the countries visited by Captain Cook in his first voyage. 1768–1771 (Anonymous 1771). Pen and wash sketch by John Frederick Miller originally published/produced in 1771. Add. 23920, f35. 013788, reproduced courtesy of The British Library Board.



Figure 4. Close-up of the back of the shield collected at Botany Bay showing the hole adjacent to the handle. British Museum, registration number Oc1978, Q839. Image number AN602472001, reproduced courtesy of The Trustees of The British Museum.

“Defensive weapons we saw only in Sting-Rays [Botany] bay and there only a single instance—a man who attempted to oppose our Landing came down to the Beach with a shield of an oblong shape about 3 feet long and 1½ broad made of the bark of a tree; this he left behind when he ran away and we found upon taking it up that it plainly had been pierced through with a single pointed lance near the centre. That such sheilds [sic] were frequently usd [sic] in that neighbourhood we had however sufficient proof, often seeing upon trees the places from whence they had been cut and sometimes the sheilds [sic] themselves cut out but not yet taken off from the tree” (Beaglehole 1963: 133).

Although Banks mentions the man left the shield ‘behind’, he still makes no unambiguous mention that the shield was collected. However, in addition to Banks’ description, there is a sketch by John Frederick Miller dated 1771 (Figure 3), after a sketch by Sydney Parkinson, the *Endeavour*’s official artist (Anonymous 1771). This sketch depicts a shield such as that described by Banks and with a clearly visible hole piercing it, just like the Kamay Botany Bay shield in the British Museum (Figure 4).

The combined evidence presented above allows us to be confident that the shield in the British Museum is the same one described by Banks as coming from Botany Bay and

that it was collected from Botany Bay on Cook's first Pacific voyage of discovery on HMS *Endeavour*.

Recent botanical evidence

Both the shield and handle were identified in the British Museum's Department of Conservation and Scientific Research as being made of red mangrove (*Rhizophora stylosa* Griff.). In the mid-1900s, scars from making shields were still visible on the trunks of mangroves in the tidal estuaries around Tacking Point and Port Macquarie (McCarthy 1947: 429), where this species grows.

Method of wood identification

Standard techniques of identification and terminology laid down by the International Association of Wood Anatomists (IAWA) are conventionally adopted for the identification of modern wood (Wheeler *et al.* 1986; Wheeler 2011). For each sample the key features are compared with reference collection specimens, wood databases and textual descriptions. This IAWA protocol may be applied to archaeological or historical wood and charcoal, providing it is modified to accommodate the effects of the conditions of preservation (e.g. Cartwright 1997, 2013). In all instances, each sample is prepared so as to expose transverse, radial longitudinal and tangential longitudinal sections or surfaces for identification (TS, RLS and TLS respectively). For modern wood and some types of historical wood (where larger samples may be permitted), thin sections with an approximate thickness of 12–14µm (micrometres) are cut on a microtome and mounted on glass microscope slides to be examined by transmitted light optical microscopy. On account of the extremely small sample sizes permitted, a variation on these standard techniques was applied to the bark shield. Tiny discreet wood samples, 2 × 2 × 2mm in size, were removed from already damaged and unobtrusive areas. These samples were examined at very high magnification in the scanning electron microscope (SEM) so that the characteristic cellular structure and other diagnostic features could be identified (Figure 5). The SEM gives much higher magnifications, resolution and detail than can be achieved with an optical microscope. With a standard SEM the sample is placed in a chamber that is fully evacuated and the sample needs to be coated with a conducting surface layer (such as gold or platinum) in order to be examined (Cartwright *et al.* 2012). Using a variable pressure SEM is advantageous inasmuch as the examination is carried out under partial vacuum, therefore the sample does not need to be coated beforehand.

It is very important to note that the wood samples from the shield showed preservation of xylem as well as bark cells. In consequence, it was possible to examine in minute detail in the SEM the vessels, parenchyma and fibres by means of TS, RLS and TLS. The secure identifications of *Rhizophora stylosa* were made on the basis of the anatomical characteristics listed in the Technical Note at the end of this paper, comparison with reference collection specimens (which included *Rhizophora*, *Avicennia* and other Australian mangrove genera), wood anatomy publications (e.g. Van Vliet 1976; Ilic 1991), online wood anatomy databases (InsideWood n.d.) and through author CRC's own particular specialist expertise in the wood anatomy of mangrove taxa.



Figure 5. Variable pressure scanning electron microscope image of a transverse section of *Rhizophora stylosa* wood from Oc1978, Q.839, showing very thick-walled fibres adjacent to ray parenchyma, axial parenchyma and a vessel. Image: C.R. Cartwright; © The Trustees of the British Museum.

Distribution of Rhizophora stylosa along the NSW coast

Rhizophora stylosa does not grow along the Sydney coastline. It is primarily a tropical species and recently a new southern limit was determined: South West Rocks Creek, just north of Kempsey on the NSW north coast (Wilson 2009: 48–49, 132; NSW Royal Botanic Gardens 2010). South West Rocks is some 500km north of Botany Bay (as the crow flies, but much further for people on foot) (Figure 1). The present botanical evidence suggests this species of mangrove has been spreading south over the last few decades, with recent climatic warming probably involved, but there is no suggestion that *Rhizophora stylosa* ever extended as far south as Sydney (Wilson 2009: 221, 280).

Discussion

Identifying that the Kamay Botany Bay shield is made of *Rhizophora stylosa* has interesting implications. Historical records confidently identify its place of collection as Botany Bay in 1770, well before any disruptions and population movements caused by British colonisation in and after 1788. The implication is that the shield (assuming the wood/bark was not taken

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unworked to Botany Bay) was carried by Aboriginal people from somewhere north of South West Rocks to Botany Bay. At the time of British colonisation there was more than one language group along this length of coastline (Wafer & Lissarrague 2008), and so the shield would have passed through the country of more than one language group.

There are several possible ways that the shield could have reached Botany Bay from the New South Wales north coast:

- an individual person could have carried the shield all the way;
- there may have been a single exchange between two people, with the transaction taking place somewhere between Botany Bay and the NSW north coast; or
- there may have been a series of exchanges between a number of people at different places; a system known as hand-to-hand or down-the-line exchange (McCarthy 1939a: 406–409, 1939b: 99–100; Renfrew 1977: 72, 84 respectively).

Movement of the shield therefore reflects the movement of people and/or the existence of a long-distance exchange system along the coast of New South Wales in pre-colonial times.

Long-distance exchange systems have been recorded in many parts of Australia extending “hundreds or even thousands of kilometres” (McBryde 1997: 588; see also McCarthy 1939a & b; Mulvaney 1976; McBryde 1978: 355). However, the historical evidence for exchange systems east of the Great Dividing Range in New South Wales is limited. The items exchanged included tools, weapons and stone materials, as well as ceremonial objects, songs and items of ‘special value’ that perhaps had been brought from some ‘distant place’ (Dawson 1830: 135–36 in McCarthy 1939a: 406; McCarthy 1939a: 406–409; Enright 1940: 322–23; Howitt 1996 [1904]: 717–20). Howitt (1996 [1904]: 719–20) reports an instance where “an ancient shield had been brought originally from the upper waters of the Murrumbidgee River [to the NSW south coast, approximately 100–150km], and was greatly valued because, my informant said, it had ‘won many fights’”. Along the NSW north coast, historical accounts describe exchanges and/or seasonal movements of people principally between the coast, hinterland and tableland, and often within the major river catchments (McBryde 1974: 195, 338–40, 1979: 114, 116; Bundock 1978: 262; Campbell 1978: 89). There appears to be no record of exchanges taking place between the north coast groups and those of the Hunter Valley and further south in the Sydney region (see also Brayshaw 1986: 40–42). Objects gained by exchange are often identified in these historical reports, but the objects received in return are rarely mentioned, nor are the places from which they originated or the distances involved; particularly distances of the magnitude envisaged for the Kamay Botany Bay shield (approximately 500km or more).

Exchanges often took place at male initiation ceremonies where people from different language groups came together from over a wide area; they were an important way in which social relationships were created and maintained (cf. McBryde 1984). Although historical accounts for the Sydney region report that “many strangers” were present at occasions such as the 1795 ceremony at Farm Cove on Port Jackson (Collins 1975 [1798]: 466–67), exactly where they came from was not mentioned. On one occasion, a whale feast to celebrate a woman’s death, Collins (1975 [1798]: 490) records that “several people from the north-ward,

who spoke a dialect very different to that with which we were acquainted” were present, but how far north and whether they brought items for exchange was not mentioned.

Archaeological studies, principally of ground-edged hatchet-heads, also provide evidence for the movement of tools and/or raw materials in south-eastern Australia (Binns & McBryde 1972; McBryde & Watchman 1993; Attenbrow *et al.* 2012; Grave *et al.* 2012). Again, however, the distances involved east of the Great Dividing Range are not great (<200km), though they do extend beyond single river catchments and historically recorded language group boundaries (Attenbrow *et al.* 2012; Grave *et al.* 2012).

Identifying the place of manufacture (source of raw material) of the Kamay Botany Bay shield as being the NSW north coast is currently the only documented instance where it can be said that an object from the NSW north coast was taken to the Sydney region. This movement, as well as the distance involved, is thus of great interest as it extends our understanding of the exchange systems and/or movements of people along eastern New South Wales before British colonisation. The distance involved and the number of language groups within this distance suggests hand-to-hand exchange may have been the process involved in the shield reaching Botany Bay.

However, did the shield arrive in Botany Bay as an exchange item because it was believed to be ‘powerful’—as in the instance reported by Howitt (1996 [1904])? Was the hole near the centre of the shield caused by a spear thrown during ritual combat or some other occasion of conflict during which the carrier of the shield had not sustained injury, and thus the shield was seen to have ‘protective powers’? If so, is this the reason the Aboriginal man rushed away to get the shield and face the British with it? We may never know the answers to these questions, but information about the shield from Botany Bay has provided present-day researchers with previously unknown evidence about the movements of cultural materials along eastern New South Wales.

Conclusions

Very few Aboriginal shields from eastern New South Wales have survived. The only other similarly shaped shields that are known with withy handles, albeit of hardwood rather than bark, are held in the British Museum (OC.4979 from Port Stephens, NSW north coast) and the Australian Museum (E.42918 from Port Macquarie, NSW north coast; and B.01788 attributed to Sydney). In addition to its rarity and its age in the Australian context, the Kamay Botany Bay shield is important as it provides information about the raw materials and manufacturing methods used by the Aboriginal people of coastal New South Wales in producing their equipment. In addition, given its collection date before any of the disruption and population movements caused by British colonisation, the recent botanical identification provides information about the social relationships and exchange systems that existed in coastal New South Wales before 1770.

Acknowledgements

We thank Natasha McKinney, Curator, Oceania Department of Africa, Oceania and the Americas of the British Museum for inviting Val Attenbrow to participate in ‘A History of the World in 100 Objects’ and ‘Talking Objects’, which led to the writing of this paper. We also thank Janet Ambers and Joanne Dyer (Department of

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Conservation and Scientific Research, British Museum) for carrying out X-radiography and Fourier transform infrared spectroscopy (FTIR) as part of the technical examination of the shield for 'A History of the World in 100 Objects'.

Technical Note

A diffuse-porous arrangement of vessels; scalariform perforation plates; scalariform intervessel pits; vessel-ray pits with much reduced borders to apparently simple; vessel-ray pits rounded or angular; vessel-ray pits horizontal (scalariform, gash-like) to vertical (palisade); tyloses in vessels; septate and non-septate fibres with simple to minutely bordered pits; fibres very thick-walled (Figure 5); scanty paratracheal axial parenchyma; aliform axial parenchyma; unilateral paratracheal axial parenchyma; larger rays commonly 4 to 10 seriate; body ray cells procumbent with one row of upright and/or square marginal cells; prismatic calcium oxalate crystals in upright and/or square ray cells and also in procumbent ray cells.

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Received: 9 July 2013; Accepted: 26 September 2013; Revised: 23 December 2013